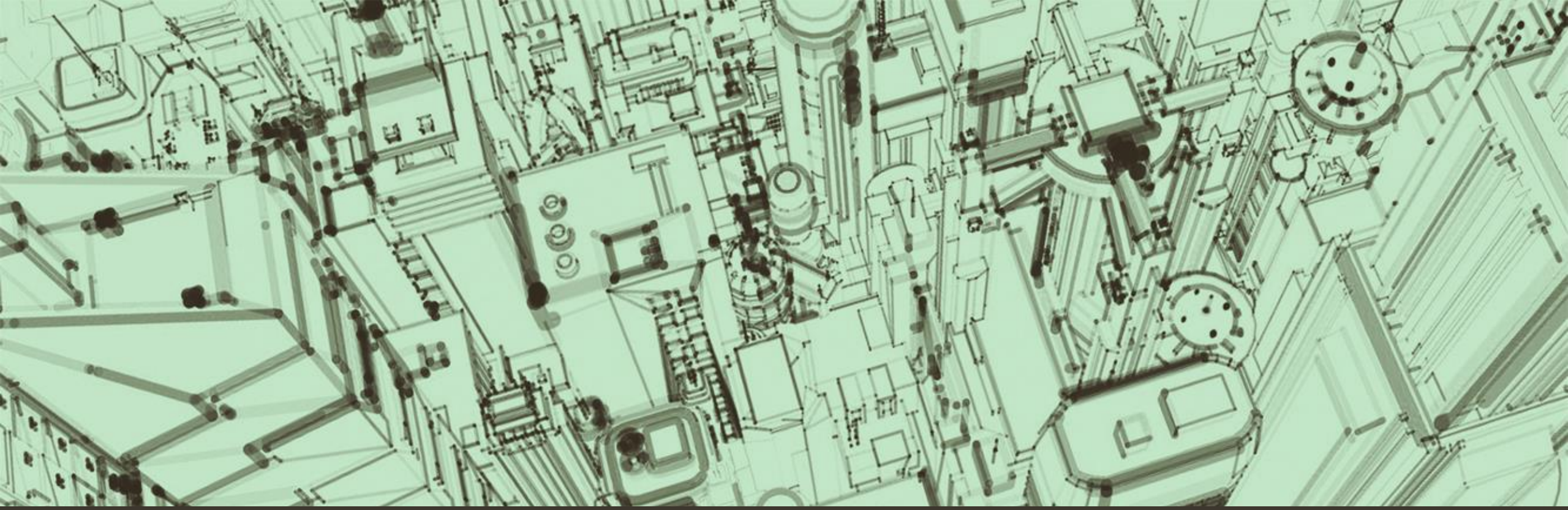


A comparison between Manchester and London neighbourhoods for relocation.

Richard Crowe

Introduction

Background

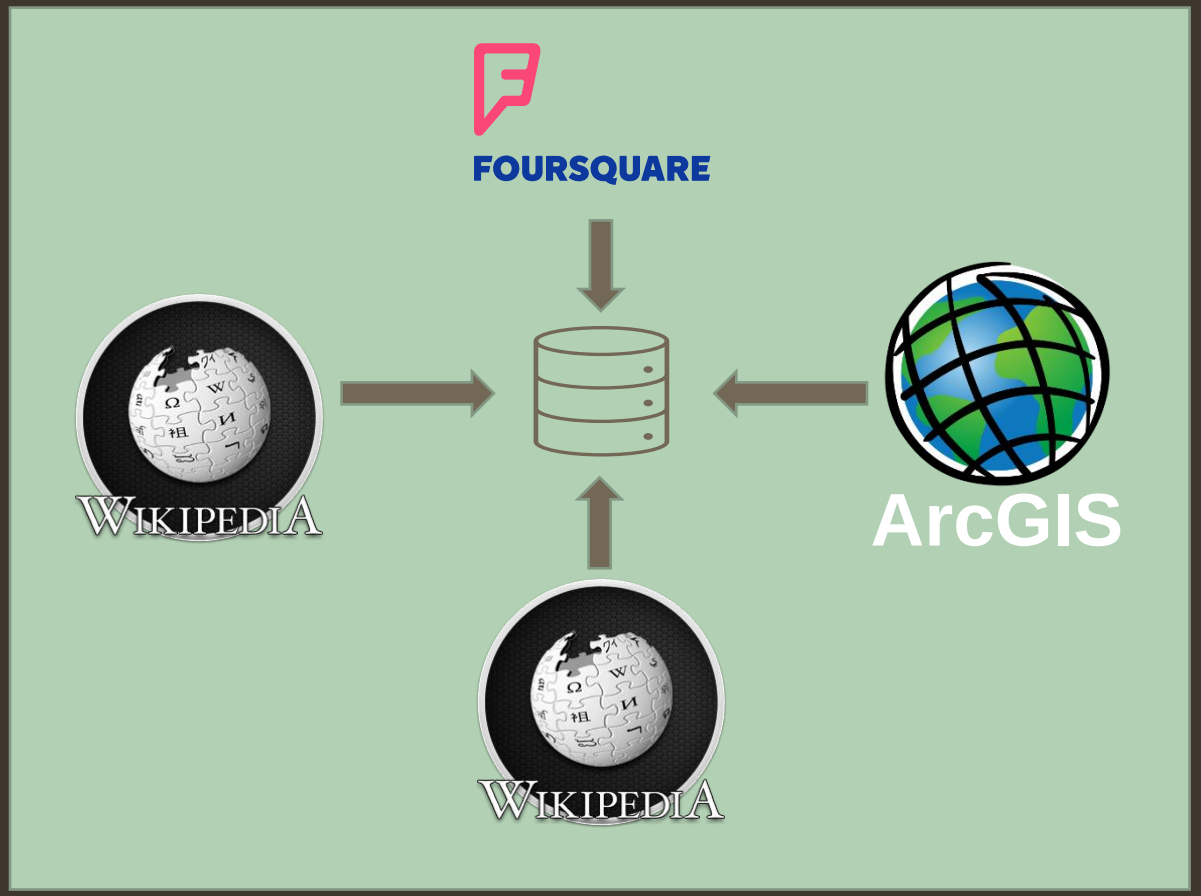
- London is the capital city of England and a major hub of business and career opportunity.
- Many people relocate to London from the rest of the UK, in order to take advantage of the rich opportunities.
- Most of these migrants have little knowledge of the geography of London or where they might enjoy living.

Objective

- To provide people considering moving to London with a guide of how the various neighbourhoods match those of their own city.
- This study is based on Manchester and the same principles could be used for any other city.
- The resulting output will be a mapping between each neighbourhood of the two cities.

Data Gathering

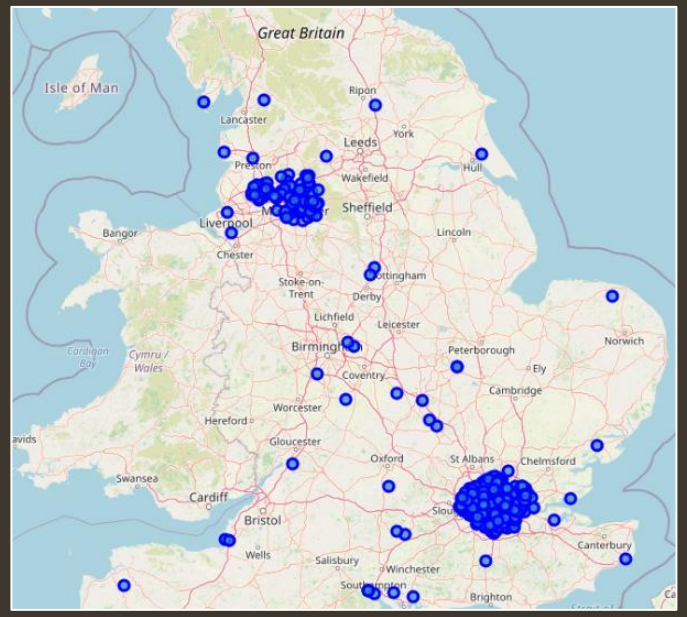
- The target areas were expanded to Metropolitan County areas of Greater Manchester and Greater London, which includes other towns and cites within an easy commute.
- A list of neighbourhoods for the Greater Manchester and Greater London areas was scraped from Wikipedia.
- This was then appended with latitude and longitude data from ArcGIS.
- The resulting dataset was then enriched with categories for the top 300 venues within a 2km radius of each neighbourhood centre.
- In total there were 94 neighbourhoods for Greater Manchetser and 532 for Greater London.



Data Cleaning

- Once visualized on a map, it was apparent that some of the neighbourhood data returned from ArcGIS was not for the target areas.
- This data was removed from the dataset to ensure only relevant data was included.
- During cleaning, a total 0f 69 neighbourhoods were removed.

Original data



Cleaned data

Clustering

- K-means clustering was used to partition the dataset into four clusters of similar neighbourhoods.
- This method of clustering places each observation into the cluster with the nearest mean (cluster centre), resulting in clusters based around a cluster centroid.
- It can be observed that the majority of neighbourhoods appear to of similar makeup (i.e. are in cluster 1).

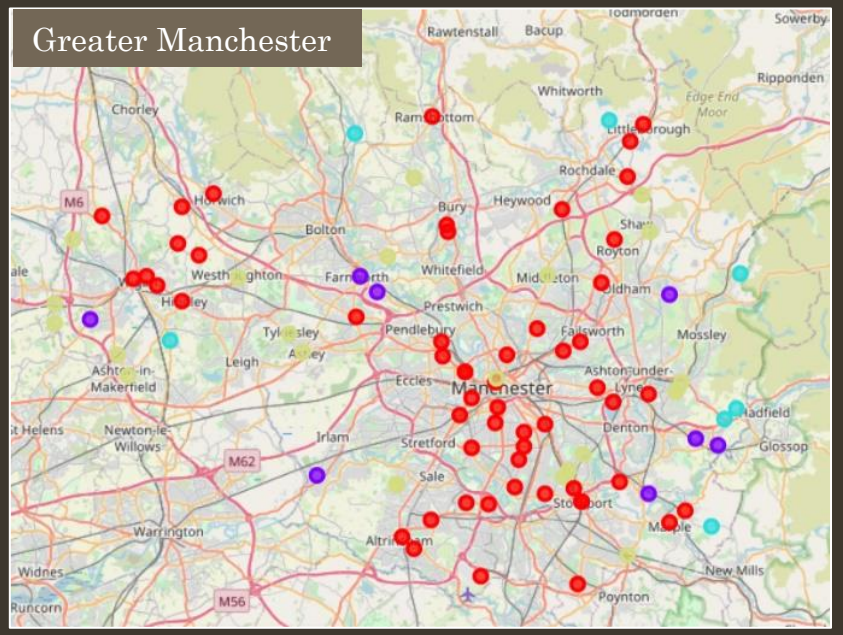
Cluster 1

Cluster 2

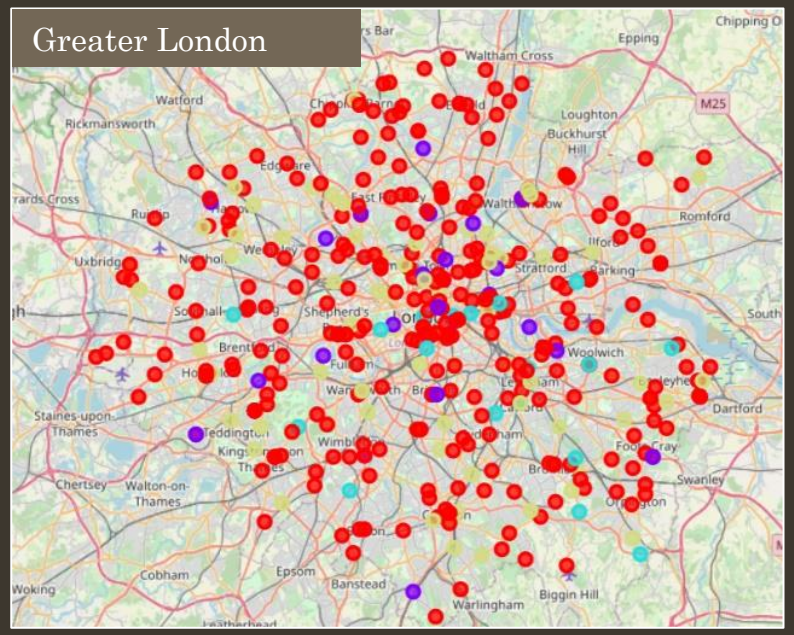
Cluster 3

Cluster 4

Greater Manchester

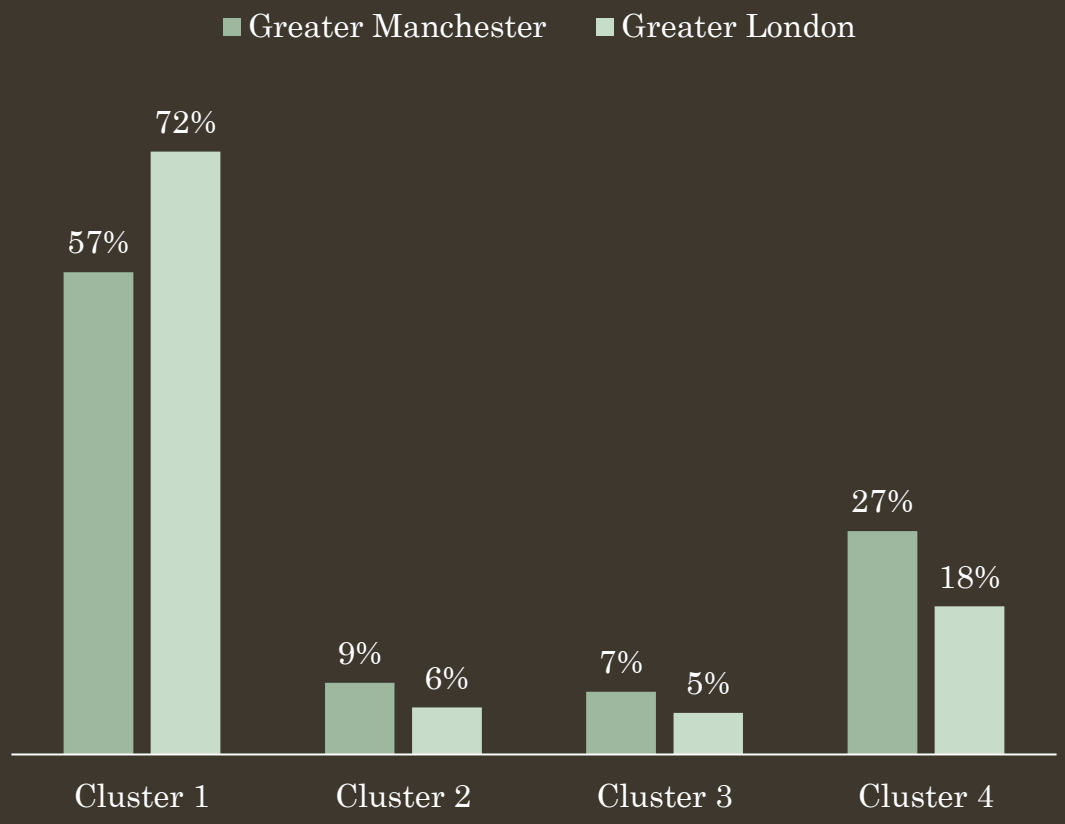


Greater London



Clustering Results

Share of neighbourhoods in each cluster



Cluster Descriptions

1	Towns and villages with a good range amenities including pubs, restaurants shops and transportation links.
2	Residential suburbs with public transport links, grocery shops and fast food.
3	Residential suburbs with local pubs and outdoor recreation.
4	Residential suburbs comprising of a variety of pubs and restaurants, with food and drink lifestyle.

Recommendations

To build on this initial study, it is recommended to perform additional analysis of the neighbourhoods with the introduction of more data and a more complex clustering approach.

Data

Additional data should be sourced which might include:

- Communting time to city centre
- House prices
- Population density
- Household income

Approach

A more complex clusterimg approach should be considered, which may uncover more distinct and varied clusters. Combined with the additional data, this could result in a more detailed guide for people considering relocating to London.

An approach to consider would be hierarchical clustering.